8 AI RTD Module NX6020

Nexto Series

Doc.Code: CE114304 Revision: B

Product Description

Nexto Series is a powerful and complete Programmable Logic Controller (PLC) with unique and innovative features. Due to its flexibility, smart design, enhanced diagnostics capabilities and modular architecture, Nexto can be used for control systems from medium to high-end large applications. Due to its compact size, high density of points per module and superior performance capacity, Nexto can also be used for small automation systems with high performance requirements as industrial machines and manufacture applications.

Nexto Series presents a wide range of I/O modules which were designed to fit requirements in different kinds of applications. NX6020 module allows the reading of the temperature sensors of RTD type (resistance temperature detectors), supporting a wide variety of sensors and resistance bands as well. The module has eight inputs which are individually configurable, allowing the use of temperature scales either in Celsius or Fahrenheit and configurable filters which help in the implementation of de industrial automation systems and processes control. Finally, Nexto Series has some innovative features for diagnosis and maintenance, such as Electronic Tag on Display, Easy Plug System and One Touch Diag.

Its main features are:

- 8 RTD analog inputs and resistance in a single width module
- Support for different types of RTD sensors: Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000 and Cu10
- Support for multiple resistance range: 0 to 400 Ω and 0 to 4000 Ω
- Individual configuration per input
- Software configurable filters
- Galvanic isolation between inputs and internal logic
- Protection against surge voltage
- Support for hot swap
- Under and over range diagnostics
- Display for module diagnostics and input state indication
- Easy Plug System
- One Touch Diag
- Electronic Tag on Display

Ordering Information

Included Items

The product package contains the following items:

- NX6020 module
- 20-terminal connector with wire holder
- Installation guide

Product Code

The following code should be used to purchase the product:

Code	Description
NX6020	8 AI RTD Module

Related Products

The following product must be purchased separately when necessay:

Code	Description
NX9403	20-terminal connector with wire holder

Innovative Features

Nexto Series brings to the user several innovations in utilization, supervision and system maintenance. These features were developed focusing on a new experience in industrial automation. The list below shows some new features that the user will find.

Easy Plug System: Nexto Series has an exclusive method to plug and unplug I/O connectors. The connectors can be easily removed with a single movement and with no special tools. In order to plug the connector back to the module, the frontal cover assists the installation procedure, fitting the connector to the module.

One Touch Diag™: One Touch Diag is an exclusive feature that Nexto Series brings to PLCs. With this new concept, the user can check diagnostic information of any module present in the system directly on CPU's graphic display with one single press in the diagnostic switch of the respective module. OTD is a powerful diagnostic tool that can be used offline (without supervisor or programmer), reducing maintenance and commissioning times.

ETD – Electronic Tag on Display: Another exclusive feature that Nexto Series brings to PLCs is the Electronic Tag on Display. This new functionality makes the process of checking the tag of any I/O terminal or module used in the system directly on the CPU's graphic display. Along with this information, the user can check the description as well. This feature is extremely useful during maintenance and troubleshooting procedures.

IF Product Design Award 2012: Nexto Series was the winner of iF Product Design Award 2012 in industry + skilled trades group. This award is recognized internationally as a seal of quality and excellence, considered the Oscars of the design in Europe.

Product Characteristics

General Characteristics

	NX6020
Backplane rack occupation	1 slot
Module type	8 analog inputs
Input type	Individually configurable inputs Resistances: 0 to 400 Ω and 0 to 4000 Ω Sensors RTD: Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000 and Cu10
Data format	16 bits in two's complement, justified to the left
Converter resolution	24 bits monotonicity guaranteed, no missing codes
Input state indication	Yes
One Touch Diag (OTD)	Yes
Electronic Tag on Display (ETD)	Yes
Status and diagnostic indication	Display, web pages and CPU's internal memory
Hot swap support	Yes
Module protection	Yes, protection against surge voltages
Isolation **Inputs to logic** **Inputs to protective earth** ⏚ **Logic to protective earth** ⏚	 1500 Vac / 1 minute 1500 Vac / 1 minute 1500 Vac / 1 minute
Current consumption from backplane rack	300 mA
Maximum power dissipation	3 W
IP level	IP 20
Operating temperature	0 to 60 °C
Storage temperature	-25 to 75 °C
Operating and storage relative humidity	5 to 96 %, non-condensing
Conformal coating	Yes
Standards	IEC 61131-2 CE, Electromagnetic Compatibility directives (EMC) and Low-voltage devices (Low-Voltage Directive – LVD) CE RoHS 2002/95/EC
Module dimensions (W x H x D)	18.00 x 114.62 x 117.46 mm
Package dimensions (W x H x D)	25.00 x 122.00 x 147.00 mm
Net weight	200 g
Gross weight	250 g

Notes:

Conformal coating: Conformal coating protects the electronic components inside the product from moisture, dust and other harsh elements to electronic circuits.

Temperature Mode Characteristics (RTD)

	NX6020
Precision (25 °C)	
0..400 Ω	±0.05% of full scale rating
0..4000 Ω	±0.05% of full scale rating
Pt (100, 200, 500, 1000)	±0.5 °C
Ni (100, 120, 200, 500, 1000)	±0.5 °C
Cu10	±1 °C
Precision (0 to 60 °C)	
0..400 Ω	±0.15% of full scale rating
0..4000 Ω	±0.15% of full scale rating
Pt (100, 200, 500, 1000)	±1.2 °C
Ni (100, 120, 200, 500, 1000)	±1 °C
Cu10	±1.5 °C
Measurement unit	°C or °F
Input impedance	> 10 MΩ
Connection types	2 and 3 wires
Excitation current	1.02 mA
Continuous maximum voltage	±15 Vdc
Noise Suppression Filter	Disabled, 50 Hz and 60 Hz
Conversion time	
50 Hz	82.5 ms / channel
60 Hz	69.ms / channel
Disabled	12.5 ms / channel
Maximum conversion time	
50 Hz	660 ms
60 Hz	552 ms
Disabled	100 ms
Low pass filter time constant	Disabled, 100 ms, 1 s and 10 s
Configurable parameters	Noise suppression filter Temperature unit Input types Connection types Digital filter
Open input detection	Yes, available in diagnostics
Over range indication	Yes
Under range indication	Yes
Sensor cable maximum impedance	20 Ω per wire

Notes:

Noise suppression filter: The value of the selected filter in this parameter will be applied to all module reading inputs.

Conversion time: Each module channel corresponds to an enabled input.

Maximum conversion time: The conversion time shown in the table above refers to the total conversion time for the 8 channels according to the selected noise suppression filter.

Open input detection: In this situation will be presented an over range indication and the read value presented will be the full scale rating selected.

Maximum impedance of the sensor cable: On a two-wire connection, the value read is the result of the sum of the sensor reading and resistance of each wire. In case of using this connection with large cables, the value read by the module will be affected by the effect of the resistance of the cable wires. On a three-wire connection, the error due to wire resistance is compensated by measuring the resistance value of one of the cable wires. Therefore, to enable a correct compensation is necessary for all the cable wires to have the same resistance.

Over range indication: When the input selected is RTD reading type and the sensor input value is greater than the maximum value of full scale for the range selected, the symbolic variable will be enabled. In this condition, besides enabling the diagnostic variable, the module will set the value read to the maximum value of full scale configured for this channel. In case of resistance reading, the diagnostic becomes active when the input value read in the input is 1% greater than the maximum value of full scale configured for this channel. If the value read exceeds 5% of the maximum value of full scale, the module will set the reading variable of this channel to this value.

Under range indication: This diagnostic becomes active when the input selected is RTD reading type and the value read in the channel is less than the minimum value of full scale for the selected range. E.g. for the PT100E (-200 a +850 °C) scale, the diagnostics variable will be enabled when the measured value is less than -200 °C. In this condition, besides enabling the diagnostic variable, the module will set the value read to the minimum value of full scale configured for this channel. For resistance reading scale this diagnostic is not available.

The tables below show the functioning of over range and under range diagnostics according to the RTD sensor or applicable resistance scale.

Diagnostics	Sensors of Platinum type (Pt) α= 0.00385		Sensors of Platinum type (Pt) α= 0.003916		Sensors of Nickel type (Ni)		Sensor of Copper type (Cu)	
	Temperature	Count	Temperature	Count	Temperature	Count	Temperature	Count
Over range	> 850 °C	8500	> 630 °C	8500	> 250 °C	2500	> 260 °C	2600
No diagnostics	850 to -200 °C	8500 to -2000	630 to -200 °C	8500 to -2000	250 to -60 °C	2500 to -600	260 to -200 °C	2600 to -2000
Under range	< -200 °C	-2000	< -200 °C	-2000	< -60 °C	-600	< -200 °C	-2000

Diagnostics	0 to 400 Ω Scale		0 to 4000 Ω Scale	
	Resistance	Count	Resistance	Count
Over range	> 420 Ω	4200	> 4200 Ω	4200
	420 to 404.1 Ω	4200 to 4041	4200 to 4041 Ω	4200 to 4041
No diagnostics	404 to 0 Ω	4040 to 0	4040 to 0 Ω	4040 to 0

The table below presents the types of configurable inputs supported by NX6020 module.

Input type	Temperature Coefficient (α)	Measurement Band	Count	Resolution
Pt100E, Pt200E, Pt500E, Pt1000E	0.00385	-200 to 850 ºC -328 to 1562 °F	-2000 to 8500 -3280 to 15620	0.1 °C 0.2 °F
Pt100A, Pt200A, Pt500A, Pt1000A	0.003916	-200 to 630 ºC -328 to 1166 °F	-2000 to 6300 -3280 to 11660	0.1 °C 0.2 °F
Ni100, Ni200, Ni500, Ni1000	0.00618	-60 to 250 °C -76 to 482 °F	-600 to 2500 -760 to 4820	0.1 °C 0.2 °F
Ni120	0.00672	-60 to 250 ºC -76 ºF to 482 ºF	-600 to 2500 -760 to 4820	0.1 °C 0.2 °F
Cu10	0.00427	-200 to 260 ºC -328 ºF to 500 ºF	-2000 to 2600 -3280 to 5000	0.1 °C 0.2 °F
400 Ω	-	0 to 400 Ω	0 to 4000	0.1 Ω
4000 Ω	-	0 to 4000 Ω	0 to 4000	1 Ω

Note:

Temperature Coefficient (α): For the Platinum type sensors (Pt100, Pt200, Pt500 and Pt1000) there are two supported coefficients. For other types of sensors there is only one associated temperature coefficient. In the Module Parameters the possible settings per channel can be found.

Installation

Electrical Installation

The figure below shows an example where some inputs of NX6020 module are used: input 00, input 02, input 03 and input 06. Each one of these inputs presents a different type of connection, according to the following.

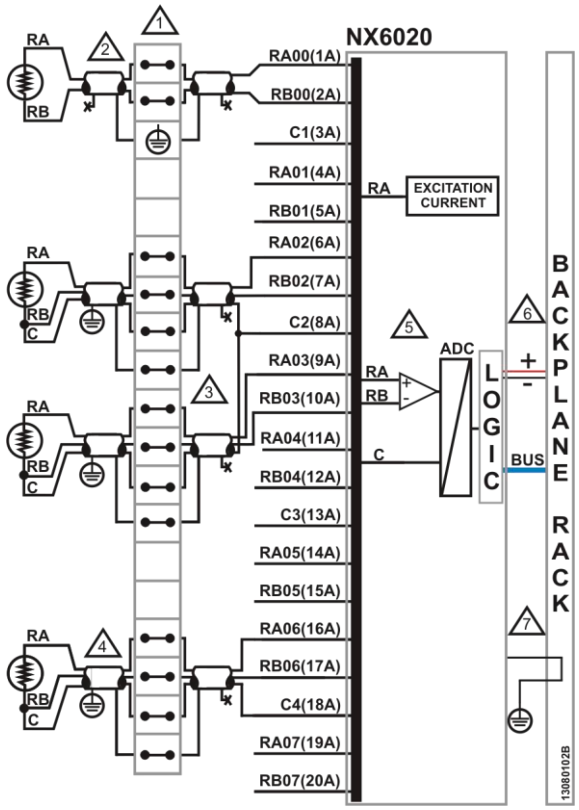


Diagram Notes:

1 – The diagram above has the representation a set of terminal blocks where each symbol represents a different kind of terminal block: represnts a standard feed-through terminal block, represents a grounding terminal block, represents a feed-through terminal block with connection to other terminal block and represents a fuse terminal block.

2 – Input 00 shows an example of a 2-wire connection. In this case only one of the ends of the sensor grounding shield in the field and the cable used to connect the module NX6020 to the terminals of the electric panel are being connected to the earth terminal of the electric panel. In this type of connection, the other end of each cable must not be connected to other grounding point.

3 – Inputs 02 and 03 show examples of 3-wire connection, where the compensation wire of the sensors are connected to the NX6020 module at one single point (C2), which refers to the ports 02 and 03.

4 – Input 06 shows an example of a 3-wire connection, where the central point of grounding is done is the field. One end of the sensor grid in the field is connected to field grounding point and the other end is connected to the electric panel terminal board. The cable grid used to connect the electric panel terminal board to the NX6020 module terminals is connected in only one of its ends (which are connected to the electric panel terminal board).

5 – The use of RA, RB and C signal depends on the number of wires used in the sensor connection.

6 – The module power supply is derived from the connection to the backplane rack, not requiring external connections.

7 – The NX6020 module is grounded through the backplane rack.

The following table shows the description of each connector terminal:

Terminal	Input	Description
1A	00	Positive signal RTD (excitation current for 2/3 wire sensor)
2A		RTD negative
3A	Common	Compensation for 3-wire sensor
4A	01	RTD positive signal (excitation current for sensor 2/3 wire)
5A		RTD negative
6A	02	RTD positive signal (excitation current for sensor 2/3 wire)
7A		RTD negative
8A	Common	Compensation for 3-wire sensor
9A	03	RTD positive signal (excitation current for sensor 2/3 wire)
10A		RTD negative signal
11A	04	RTD positive (excitation current for sensor 2/3 wire)
12A		RTD negative signal
13A	Common	Compensation for 3-wire sensor
14A	05	RTD positive signal (excitation current for sensor 2/3 wire)
15A		RTD negative signal
16A	06	RTD positive (excitation current for sensor 2/3 wire)
17A		RTD negative signal
18A	Common	Compensation for 3-wire sensor
19A	07	RTD positive signal (excitation current for sensor 2/3 wire)
20A		RTD negative signal

Note:

NX6020 module has no grounding terminals through the connector. The grounding is done through the terminal board or in the field sensor as described in the Electrical Installation.

Mechanical Assembly

The mechanical and electrical mounting and the connector pin insertion and removing for single hardware width I/O modules are described at Nexto Series User Manual – MU214600.

Compatibility with Other Products

The following table brings information regarding the compatibility between NX6020 module and the Nexto Series MasterTool IEC XE programming tool.

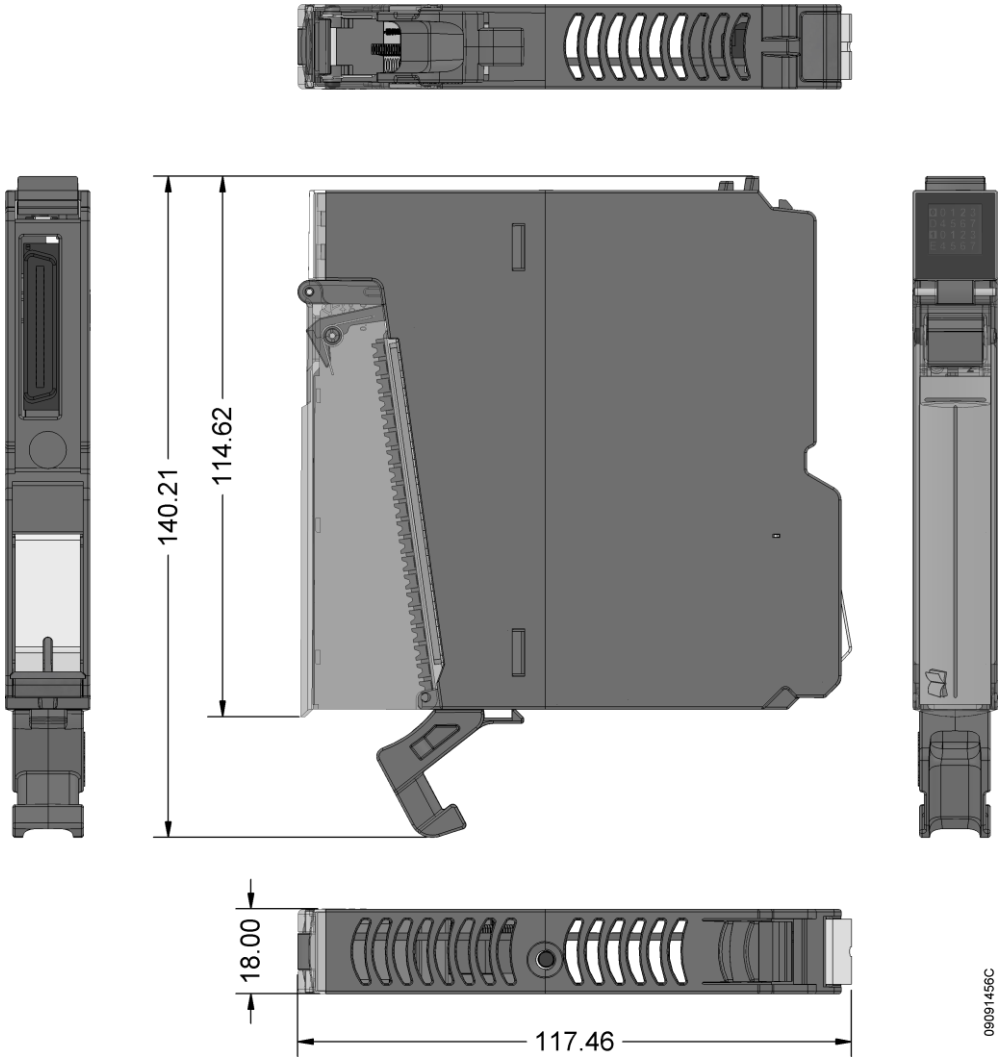
NX6020		Nexto Series CPUs	Compatible Software Version
Version	**Revision**	**Version**	**MasterTool IEC XE**
1.0.0.0	AA	1.4.0.0 or higher	2.00 or higher

Note:

Product revision: If the software is upgraded in the field the product reviewing indicated on the label will no longer match the actual review of the product.

Physical Dimensions

Nexto Series User Manual - MU214600 should be consulted for general measurement of installation panel.
Dimensions in mm.



Configuration

NX6020 module was developed to be used with Nexto Series products. All Nexto Series products are configured in MasterTool IEC XE. All configuration data of a given module can be accessed through a double click in it on the Graphical Editor.

Process Data

Process Data are the variables that are used to access the NX6020 module. The list below describes all variables delivered by NX6020 module.

The process data of the module, when inserted in a PROFIBUS network, can be accessed through variables. The table below presents the variables organizational structure in the UCP memory.

Besides these data, this module also provides a set of variables containing information related to diagnostics which are also described in this document.

Variable	Size	Process Data	Description	Type	Update
%IB(n)	WORD	AI 00	Analog Input 00	INT (Reading)	Always
%IB(n+2)	WORD	AI 01	Analog Input 01	INT (Reading)	Always
%IB(n+4)	WORD	AI 02	Analog Input 02	INT (Reading)	Always
%IB(n+6)	WORD	AI 03	Analog Input 03	INT (Reading)	Always
%IB(n+8)	WORD	AI 04	Analog Input 04	INT (Reading)	Always
%IB(n+10)	WORD	AI 05	Analog Input 05	INT (Reading)	Always
%IB(n+12)	WORD	AI 06	Analog Input 06	INT (Reading)	Always
%IB(n+14)	WORD	AI 07	Analog Input 07	INT (Reading)	Always

Note:

Update**:** The field “Update” indicates if the respective process data is updated by CPU and NX6020 module by default. When defined as “Always”, it means that the process data is always updated. When defined as “Selectable”, it means that the user can select if the respective process data will be updated or not. All these process data are exchanged between CPU and NX6020 module through the bus, to improve CPU performance. It is recommended to update only the process data that will be used in the application.

Module Parameters

Name	Description	Standard Value	Options	Configuration
Noise Suppression Filter	Enables or disables the Noise Suppression Filter in the frequencies of 50 Hz or 60 Hz	60 Hz	50 Hz 60 Hz Disabled	Per module
Temperature Unit	Selects the temperature unit	Degrees Celsius	Degrees Celsius Degrees Fahrenheit	Per module
Input Type	Configuration of the input type	Non Configured	Non configured 400 Ω 4000 Ω Pt100A Pt100E Pt200A Pt200E Pt500A Pt500E Pt1000A Pt1000E Ni100 Ni120 Ni200 Ni500 Ni1000 Cu10	Per channel
Connection Time	Configures the connection time	Two Wires	Two wires Three wires	Per channel
Digital Filter	Configures the time or	Disabled	Disabled	Per channel

	disables the low pass filter		100 ms 1 s 10 s	

Notes:

Configuration: Indicates whether certain functionality of the module is related to an entire module configuration (per module), or if the functionality is related to a single input (per channel).

Noise Suppression Filter: This parameter is used to select the frequency of the noise suppression filter which is applied to all NX6020 module inputs. This filter rejects a particular frequency in the analog signal measurements. For each frequency configured there is an associated conversion time which must be regarded during the development of an application in the channels reading. For further information on the conversion time according to the selected filter, see the Temperature Mode Characteristics (RTD).

Input Types: Exclusively for the RTD sensors of Platinum type (Pt100, Pt200, Pt500 and Pt1000), this module supports two temperature coefficients (α), which are different from each other by its last character. For the option which ends with A the α is 0.003916 and for the option with E α is 0.00385. For information on the values of the temperature coefficients used for each type of RTD sensor, see the Temperature Mode Characteristics (RTD).

Digital Filter: This parameter enables or disables, per channel, of a first order low pass digital with time constant of 100 ms, 1 s or 10 s. If there is a signal in a channel with the digital filter enabled and a hot swap is performed in the module, the channel will start with zero until it reaches the input value, according to the selected time constant, in a dynamic way.

Module Usage

RTD Analog Input Read

NX6020 module has one variable for each input. The parameters of minimum value and maximum value are automatically configured according to the selected RTD type.

NX6020 module has one variable for each input, which will be presented in the temperature scale defined in the Measurement Unit, where the value is multiplied for 10. Thus, a 25 ºC temperature, for example, is read as 250.

Maintenance

Altus recommends that all modules' connections should be checked and any dust or any kind of dirt in the module's enclosure should be removed at least every 6 months.

Nexto Series CPUs offers many important features to assist users during maintenance: Electronic Tag on Display, One Touch Diag, status and diagnostics indicators, web page with complete status and diagnostics list and status and diagnostics mapped to internal memory.

Electronic Tag on Display and One Touch Diag

Electronic Tag on Display and One Touch Diag are important features that provide to the user the option to check the tag, description and diagnostics related to a given module directly on the CPU display.

Electronic Tag on Display and One Touch Diag are easy-to-use features. To check the tag and diagnostics of a given module, it's required only one short press (shorter than 1 s) on its diagnostic switch. After pressing once, CPU will start to scroll tag information and diagnostic information of the module. To access the respective module description just long press (longer than 1 s) the diagnostics switch of the respective module.

More information about Electronic Tag on Display can be found at Nexto Series CPUs User Manual – MU214605.

Status and Diagnostics Indicators

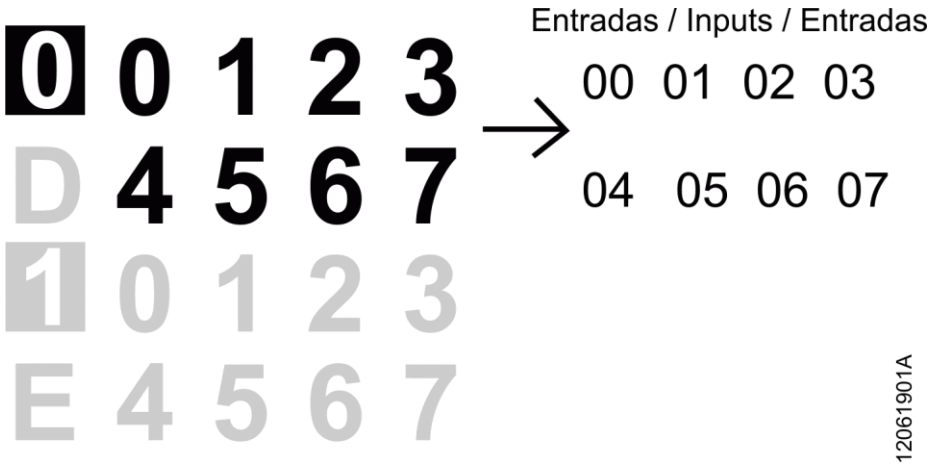
All Nexto slave modules have a display with the following symbols: D, E, 0, 1 and numerical characters. The states of the symbols D, E, 0, 1 are common for all Nexto Series slave modules. These states can be consulted in the table below.

D and E States

D	E	Description	Cause	Solution	Priority
Off	Off	Display fail or module off	Module off, external power supply fail or hardware fail	Check if the module is completely connected to the backplane rack and if the backplane rack is supplied by an external power supply	-
On	Off	Normal use	-	-	9 (Lower)
Blinking 1x	Off	Active Diagnostics	There is at least one active diagnostic related to the module	Check what the active diagnostic is	8
Blinking 2x	Off	CPU in STOP mode. If the module is in a Remote PROFIBUS, Master is in Clear state.	CPU in STOP mode	Check if CPU is in RUN mode or if PROFIBUS Master is in OPERATE mode. More information can be found on CPU's or PROFIBUS Master's documentation	7
Blinking 3x	Off	Reserved	-	-	6
Blinking 4x	Off	Non-fatal hardware fault	Hardware fault	The module remains with its main functionality. For fail correction please contact Altus Technical Support	5
Off	Blinking 1x	Parameterization error	The module isn't parameterized or didn't receive the parameterization	Check if the module parametrización is ok	4
Off	Blinking 2x	Loss of master	Loss of communication between module and CPU or module and PROFIBUS head.	Check if the module is completely connected to the backplane rack Check if CPU is in RUN mode or if PROFIBUS head is Active.	3
Off	Blinking 3x	Module without calibration	NX6020 isn´t calibrated or there was an error with the calibrated value	In this case, the module should return to the manufacturer	2
Off	Blinking 4x	Fatal hardware fault	Hardware fault	Contact Altus Technical Support in case of fatal hardware fault	1 (Higher)

0, 1 and Numerical Characters

The segments 0 and 1 are used to group the numerical characters used for inputs and outputs. In NX6020 module's case, the characters that are placed at the right side of character 0 represent the inputs from 00 a 07, where character 0 represents the input 00 and character 7 represents the input 07. The characters that are placed at the right side of character 1 and the segment 1 itself are not used in NX6020 module. The figure below shows the relationship between the numerical characters and the respective inputs.



Web Pages with Complete Status and Diagnostics List

Another way to access diagnostics information on Nexto Series is via web pages. Nexto Series CPU's has an embedded web page server that provides all Nexto status and diagnostics information, which can be accessed using a simple browser.

More information about web page with complete status and diagnostics list can be found at Nexto Series CPUs User Manual – MU214605.

Diagnostics Mapped to Variables

All NX6020 modules' diagnostics can be accessed through variables that can be handled by the user application or even forwarded to a supervisory system using a communication channel. There are two different ways to access diagnostics in the user application: using symbolic variables with AT directive or addressing memory. Altus recommends the use of symbolic variables for diagnostic accessing. The table below shows all available diagnostics for NX6020 module and their respective memory address, description, symbolic variable and string that will be shown on the CPU graphical display and web.

Direct Representation Variable		Diagnostic Message	Symbolic Variable DG_modulename.tGeneral.	Description	PROFIBUS Message Code
Variable	**Bit**				
%QB(n)	**0**	INPUT 00 W/ DIAG	bActiveDiagnosticsInput00	TRUE – Input 00 has active diagnostics	-
		-		FALSE – Input 00 has no active diagnostics	
	1	INPUT 01 W/ DIAG	bActiveDiagnosticsInput01	TRUE – Input 01 has active diagnostics	-
		-		FALSE – Input 01 has no active diagnostics	
	2	INPUT 02 W/ DIAG	bActiveDiagnosticsInput02	TRUE – Input 02 has active diagnostics	--
		-		FALSE – Input 02 has no active diagnostics	
	3	INPUT 03 W/ DIAG	bActiveDiagnosticsInput03	TRUE – Input 03 has active diagnostics	-
		-		FALSE – Input 03 has no active diagnostics	
	4	INPUT 04 W/ DIAG	bActiveDiagnosticsInput04	TRUE – Input 04 has active diagnostics	-
		-		FALSE – Input 04 has no active diagnostics	
	5	INPUT 05 W/ DIAG	bActiveDiagnosticsInput05	TRUE – Input 05 has active diagnostics	-
		-		FALSE – Input 05 has no active diagnostics	

	6	INPUT 06 W/ DIAG	bActiveDiagnosticsInput06	TRUE – Input 06 has active diagnostics	-
		-		FALSE – Input 06 has no active diagnostics	
	7	INPUT 07 W/ DIAG	bActiveDiagnosticsInput07	TRUE – Input 07 has active diagnostics	-
		-		FALSE – Input 07 has no active diagnostics	
%QB(n+1)	**0**	MODULE W/ DIAGNOSTICS	bActiveDiagnostics	TRUE – Module has active diagnostics	-
		-		FALSE – Module has no active diagnostics	
	1	MODULE W/ FATAL ERROR	bFatalError	TRUE – Fatal error	25
		-		FALSE – No fatal error	
	2	CONFIG. MISMATCH	bConfigMismatch	TRUE – Parameterization error	26
		-		FALSE – Parameterization ok	
	3	WATCHDOG ERROR	bWatchdogError	TRUE – Watchdog has been detected	27
		-		FALSE – No watchdog	
	4	OTD SWITCH ERROR	bOTDSwitchError	TRUE – Module has diagnostic switch failure	28
		-		FALSE – Diagnostic switch ok	
	5	CALIBRATION ERROR	bCalibrationError	TRUE – Module without calibration	29
		-		FALSE – Module calibrated	
	6..7	Reserved			

Detailed Diagnostics

Direct Representation Variable		**Diagnostic Message**	**Symbolic Variable DG_ modulename.tDetailed.tAnalogInput_XX**	**Description**	**PROFIBUS Message Code**
Variable	**Bit**				
%QB(n+2+ XX*2)	**0..7**	Reserved			
%QB(n+2+2 *XX+1)	**0**	OVER RANGE	bOverRange	TRUE – Input data are over range	24
		-		FALSE – Input data are ok	
	1	UNDER RANGE	bUnderRange	TRUE – Input data are under range	25
		-		FALSE – Input data are ok	
	2	Reserved			
	3	-	bInputNotEnable	TRUE – Input is not enabled	26
				FALSE – Input is enabled	
	4..7	Reserved			

Notes:

Direct Representation Value: “n” is the address defined in the field %Q Start Address of Diagnostic Area on the NX6020 module’s configuration screen – Modules Parameters tab in the MasterTool IEC XE, “XX” is the channel of analog input.

Some symbolic variables serve to access diagnostics. These diagnostics are stored into the addressing memory, then the AT directive is used to map the symbolic variables in the addressing memory. The AT directive is a reserved word in the MasterTool IEC XE, that uses this directive to declares the diagnostics automatically on a symbolic variable. All symbolic variables declared automatically can be found in the diagnostics object.

Manuals

For further technical details, configuration, installation and programing of Nexto Series CPUs User Manual - MU214605 should be consulted.

The table below is only a guide of some relevant documents that can be useful during the use, maintenance, and programming of NX6020 modules. The complete and updated table containing all documents of Nexto Series can be found at Nexto Series User Manual – MU214600.

Document Code	Description	Language
CE114000 **CT114000** **CS114000**	Nexto Series – Technical Characteristics Série Nexto – Características Técnicas Serie Nexto – Especificaciones y Configuraciones	English Portuguese Spanish
MU214600 **MU214000** **MU214300**	Nexto Series User Manual Manual de Utilização Série Nexto Manual Del Usuario Serie Nexto	English Portuguese Spanish
MU299609 **MU299048** **MU299800**	MasterTool IEC XE User Manual Manual de Utilização MasterTool IEC XE Manual Del Usuário MasterTool IEC XE	English Portuguese Spanish